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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/303,409	05/03/1999	SANDRA FREEDMAN FELDMAN	RD-26.502	8332

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EXAMINER	
FERRIS III, FRED O	

ART UNIT	PAPER NUMBER
2128	17

DATE MAILED: 02/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/303,409	FELDMAN ET AL.	
	Examiner	Art Unit	
	Fred Ferris	2123	

-- Th MAILING DATE of this communication appears on the cov r sh et with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1 December 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20 and 21* is/are allowed.

6)☒ Claim(s) *1-5,7,9-13,15,17-19 and 22* is/are rejected.

7)☒ Claim(s) *6,8,14 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 25 September 2003 (paper #12) has been entered. Claims 1-22 are currently pending in this application. Of these, Claims 1-5, 7, 9-13, 15, 17-19, and 22 have been rejected, claims 6, 8, 14, and 16 are objected to, and claims 20 and 21 have been allowed.

Response to Arguments

2. The arguments filed with applicant's amendment dated 25 September 2003 (paper #12) have been fully considered but are considered moot based on new grounds for rejection.

Regarding applicants response to 103(a) rejections: Applicants have amended independent claims 1, 9 and 17 to include limitations drawn to a molding tool having pre-determined topological features for simulating streaking phenomenon and filtering. Independent claims 19 and 22 were further amended to include limitations drawn to further analysis in terms of overall data shape and average peak or valley shift. The examiner has now applied new art rejections based on newly discovered prior art in light of applicant's amendment to the claims. However applicants are encouraged to amend independent claims as noted under Allowable Subject Matter. (see below)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-4, 9-12, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 4,314,156 issued to Kuppermann et al or UK Patent Application GB 2 288 461 A issued to Miles et al, in view of U.S. Patent 6,258,301 issued to Feuerherm et al or U.S. Patent 5,804,117 issued to Baba et al, in further view of U.S. Patent 5,254,304 issued to Adachi et al.

Independent claims 1, 9, and 17 are drawn to:
A system, method, to **identify defects** in **plastic parts** comprising:
- A **molding tool** for **producing plastic parts** having **topological features** for **simulating streaking**
- Spatially-resolved **spectrometer** for **obtaining data readings** via reflected light
- **Computer device** for **processing**, **filtering, analyzing**, **processing/post-processing** and **quantifying** data

Regarding independent claims 1, 9, and 17: Both Kuppermann and Miles teach the use of spectrometers (spatially-resolved) that obtain and identify data readings via reflected light for analyzing part samples. (Kuppermann: Abstract, Summary, CL3-L5-30, CL11-L43-CL12-L37, Fig. 1, Miles: pp. 2-5, Fig. 1) Both Kuppermann and Miles further disclose a computer device for processing, filtering, analyzing, processing/post-processing and quantifying the obtained (sampled) data. (Kuppermann: Abstract, Summary, CL1-L31-65, CL3-L5-30, CL11-L43-CL12-L37, Fig. 1, Miles: pp. 2-5, Inherent in Fig. 1)

Neither Kuppermann nor Miles explicitly teach a mold with pre-determined topological features for producing plastic parts.

*Both Feuerherm and Baba disclose a mold (with **cavity** and **gate**) for producing plastic parts (extruded) that has pre-determined topological features. (Feuerherm: Abstract, Summary of Invention, CL6-L35-CL7-L55, Specific Description, Fig. 1, Baba: Abstract, Summary of Invention, CL5-L7-CL6-L25, Embodiments 1-4, Figs. 4-16) The examiner notes that any part mold is three-dimensional and hence includes some type of pre-determined topological feature based on the design of the mold.*

Kuppermann and Miles further do not explicitly teach simulating a streaking effect in molded plastic parts.

Adachi teaches simulating a streaking effect in molded plastic parts. (Abstract, Summary of Invention, CL1-L50, Fig. 1)

It would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the teachings of Kuppermann or Miles relating to

*the use of spectrometers (spatially-resolved) that obtain and identify data readings via reflected light for analyzing part samples, with the teachings of Feuerherm or Baba relating to a mold (with **cavity** and **gate**) for producing plastic parts (extruded) that has pre-determined topological features, and to further modify the teachings of Kuppermann or Miles with the teachings of Adachi relating to simulating a streaking effect in molded plastic parts, to realize the claimed invention. An obvious motivation exists since this area of technology is highly competitive with many spectrometer based parts analyzers available in the market place and large amounts of money being spent in product development and improvement. (See Kuppermann CL1-L50, for example) Accordingly, a skilled artisan would have made an effort to become aware of what capabilities had already been developed in the market place and, hence, would have been motivated to modify the teachings of Kuppermann or Miles with the teachings of Feuerherm or Baba , and to further modify the teachings of Kuppermann or Miles, with the teachings of Adachi, in order to reduce development time and cost.*

*Regarding dependent claims 2-4 and 10-12: As previously cited above, both Feuerherm and Baba disclose a **mold** for producing **plastic parts** comprising a **cavity** and **gate** (multiple) where plastic is **extruded** to produce plastic parts. Further, the **extruded plastic** parts conform to the cavity of the mold that can obviously include holes, boss, grill or ribs (any angle) and include flat, positive and negative cavity surface shapes.*

Claims 5, 7, 13, 15, 18, 19, and 22 are rejected under 35 U.S.C. 103(a) in further view of "The Scientist and Engineer's Guide to Digital Signal Processing", S. W. Smith, California Technical Publishing, ISBN: 0-9660176-7-6, 1997

Regarding claims: 5, 7, 13, 15, 18, 19, and 22: Smith discloses digital signal processing techniques for sampled data including extracting peak values, determining, setting and extracting thresholds, calculating the mean value, calculating average values, data sampling, extracting/identifying min/max (extreme) points, digital filtering, ***moving filter (shifting in processing optimize the filtering task)****, digital techniques for characterization of spatial resolution, and data compression. (Chapters 2, 3, 14, 15, 25, and 27, especially pp. 1-17, 35-39, 59, 261-275, 277-281, 481-495, Figs. 15-1 – 15-3) As noted above, a skilled artisan would have been aware of these techniques and, hence, would have been motivated to modify the previously disclosed teachings with the teachings of Smith in order to reduce development time and cost.*

Allowable Subject Matter

4. Claims 20 and 21 have been allowed over prior art of record.

Applicants are also encouraged to amend independent claims 1, 9, and 17 to recite the limitations of objected to claims 6 and 8, or claims 14 and 16. At such time the examiner would favorably consider allowance of the remaining claims.

The following is a statement of reasons for allowance: Applicants are disclosing a method and system for identifying defects in molded parts incorporating a molding tool, a spatially-resolved spectrometer obtaining sample points, computerized post-

processing, analyzing, filtering, compression, and min/max/threshold processing of data points. This has been disclosed in the prior art. However, applicant's disclosure pertaining to calculating and linearizing a ***quality number Q*** *from the final iteration filtered data graph where* ***Q=ln (M * ∑ DL/dx)*** *and where* ***∑ DL/dx*** *represents the sum of slopes of final iteration filtered data and M is the linearazation number (see specification page 11, lines 1-24, Fig. 5, for example), is deemed novel and non-obvious over prior art of record. This feature as defined in the specification and recited in the independent claims is deemed novel and non-obvious over prior art of record.*

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, careful consideration should be given prior to applicant's response to this Office Action.

U.S. Patent 6,002,480 issued to Izatt et al teaches the use of spectrometers in material examination.

U.S. Patent 5,220,403 issued to Batchelder et al teaches the use of spectrometers in material examination.

U.S. Patent 6,441,901 issued to McFarland et al teaches the use of spectrometers in material examination.

U.S Patent 5,053,173 issued to Stict teach a molding tool with cavity and gate for extruded plastic parts.

"Thermal desorption behavior of absorbed material on wafer surfaces" T. Jimbo, IEEE 0-7803-3752-2/97, 1997 teaches defect detection using spectrometry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 703-305-9670 and whose normal working hours are 8:30am to 5:00pm Monday to Friday.

Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 703-305-3900.

The Official Fax Numbers are:

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